

## **Environmental Progress and Solid Waste Technologies**

**Delivered To Puerto Rico Chemists Association**

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Wednesday, August 16, 2006

I understand that the College of Chemists was founded in the fall of 1941, and I want to congratulate its membership and administration on having maintained the highest standards in the profession for the past 65 years. There aren't that many professional groups like yours that have remained on mission for six-and-a-half decades. Your success as an organization speaks to the commitment and quality of your membership.

Hippocrates once said that "there are in fact two things, science and opinion; the former begets knowledge, the latter ignorance." Science, indeed, begets knowledge and I, for one, have a tremendous respect for the sciences and their practitioners. This respect continues to grow as I work daily with the scientists of EPA.

We use the phrase "sound science" with a great deal of reverence, and much promise. EPA is both a scientific and regulatory agency; but we are scientific at our core. Sound science provides the foundation for intelligent decision-making. Our mission is to protect human health and the environment and we couldn't achieve either of those goals if we ignored the underlying science that guides us.

As scientists and technical experts, you are in a unique position to help better the environment of the Commonwealth and to help improve the quality of life in general on the island.

Nearly 36 years ago, the U.S. Environmental Protection Agency was founded and, at that time, environmental issues were fairly obvious – streams and rivers were contaminated, and in some cases like the Cuyahoga River in Ohio, they were aflame – the land was compromised by hazardous chemicals and industrial waste - our air was fouled with clouds of smog and soot. To quote the 60's troubadour Bob Dylan, you didn't need a weatherman to know which way the wind was blowing.

In those early days, most everyone was content to let the federal government shoulder the burden of cleanups and chasing down polluters. After all, the prevailing thought went, who better than Uncle Sam to find the bad guys and make them pay.

However, as we sank deeper and deeper into the mire of environmental transgressions, we learned we needed help – the agency couldn't travel the cleanup path on its own. Since that revelation, many willing and able partners have joined us in the journey – other federal and state agencies, municipal governments, concerned citizens, community groups, colleges and universities, non-profits and corporations.

Three-and-a-half decades later, individuals and organizations alike are starting to shoulder their portion of the burden. Green has overtaken black as the new “in” color – the color of choice. Kermit the Frog, who said “it isn’t easy being green,” can nevertheless smile a little, recognizing that maybe it’s not easy, but it sure is in vogue.

Survey after survey tells us that Americans are waking up to environmental responsibilities. People are growing more concerned. Newspapers and on-line news resources are reporting on alternate fuels and related innovative technologies. Corporations are stepping up their plans to develop new green technologies. Companies are realizing the connection between the environment and their bottom line and they are developing and employing more environmentally friendly programs.

Successful companies have begun to realize that they compete not only on price and quality, but also on environmental performance. They have an obligation to their employees, shareholders and customers to be good corporate citizens – to limit their impact on the environment.

To help encourage this behavior, EPA has a number of voluntary programs that offer strong, tangible environmental benefits, and many of the companies you represent are participants. If not, you can do well to encourage them to join.

Programs like Performance Track, which has 16 member companies in the Commonwealth, including Pfizer, Baxter, Schering-Plough, Hewlett Packard and Lifescan, are making a real difference.

This six-year-old national program invites and encourages members to conduct their business in an environmentally friendly fashion. Facilities must incorporate an environmental management system – a set of processes and practices that enable an organization to reduce its environmental footprint while increasing operating efficiency. Furthermore, they must commit to greater improvements in their environmental performance and they must provide related information to their local community.

Another voluntary program, the National Partnership for Environmental Priorities, established two short years ago, has attracted companies that have a strong interest in waste minimization and the reduction of priority chemicals. Four Puerto Rico facilities – Smart Modular Technologies of Aguada, Caribe General Electric in Patillas, Solectron in Aguadilla and Puerto Rico Sun Microsystems in Ponce have all joined and pledged to remove tons of harmful chemicals from the waste stream.

Other firms are part of the joint EPA-U.S. Department of Energy program, Best Workplaces for Commuters. This voluntary program encourages employers to offer their workers incentives – like

telecommuting, compressed workdays, vanpools and public transit reimbursements – to arrive at work and depart in an environmentally sound fashion. With gasoline prices going through the roof, more and more companies are realizing that there are layered benefits to programs like this – workers are saving on gas, less fuel is being acquired and burned, less greenhouse gases released, and the company reaps the good will benefit by helping employees, the community and the environment.

At EPA, we put our money where our mouth is. Region 2 facilities are powered by alternative energy – our building in downtown Manhattan derives its energy entirely from wind power. We offer compressed work schedules and transit reimbursements. We sponsor cell phone and battery recycling programs and, of course, we are guided by an Environmental Management System that reminds us to print double-sided and turn down the lights and turn off the computers.

We environmentalists talk a lot about creating and managing a sustainable environment. And much of what we do targets sustainability. The hypothesis is simple - if we can change behavior today, we can reap the environmental benefit tomorrow and beyond. If we can convince people and

organizations that there is a direct link between how they treat the environment today and quality of life in the future, then good environmental behavior will become part of the public consciousness – a classic “no brainer” if you will.

The concept of sustainability was crystallized by the Bruntland Commission, a UN sponsored World Commission on Environment and Development that published a report entitled “Our Common Future” in 1986. The report dealt with creating a sustainable environment and the political and economic considerations required to make it happen. This report defined sustainability as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs.” That’s a definition many of us have embraced.

When President Bush chose Steve Johnson to head EPA as Administrator, he mandated that the agency accelerate the pace of environmental progress without compromising our economic competitiveness. That message, and that mandate, resonates with our push for a sustainable environment.

Now, how do we get there from here? How do we create the sustainable environment? Well, we have to get everyone on board – we have to continue to get people involved in and aware of environmental impacts.

We have to make lifestyle changes which, in turn, impact local actions.

Along the way, we also have to take care of environmental transgressions.

That's why we announced yesterday that we are calling for the closure of three landfills - Toa Baja, Aguadilla and Santa Isabel – to minimize any risks they pose to the surrounding communities. Non-compliance at a landfill can cause irreparable harm to the environment and the community.

We have every intention of continuing to work with the Puerto Rico government and the municipalities to find a long-term solution to the landfill problem, but in the interim we are addressing some significant violations.

I want to reiterate our support and encouragement for revamping the Commonwealth's solid waste plan and I want to continue to emphasize the need for community engagement with regard to that plan. Community involvement allows for localities to demonstrate and recognize their responsibility for solid waste management.

For the past six or so months, I've been talking about the need for a comprehensive and integrated solid waste management plan for the Commonwealth. As I've said before, our ultimate goal is a comprehensive program that recognizes the need for properly located and managed landfills, with a serious approach to recycling and reducing Puerto Rico's waste.

In our region, which includes New Jersey, New York, the U.S. Virgin Islands, there are more than 70 municipal solid waste landfills. Solid waste isn't just a problem here. We're grappling with the solid waste issue throughout the country. The problem is uniquely intensified in Puerto Rico because of the limited, fixed space of an island community, the delicately balanced ecosystem of the Commonwealth and the encroachment of urban sprawl, to name just a few complicating factors.

In doing some research on the subject, it was interesting to note that Hawaii, another island community, is trying to improve the conditions of its landfills by initiating a new returnable bottle law. Hawaii has now joined nine other states, including New York in our region, by encouraging the recycling of glass and plastic bottles, and aluminum cans with a container deposit program.

There are some compelling facts in support of a bottle return program:

- The states report that 80% of beverage containers are returned;
- States with bottle bills report a 70%-80% decline in container litter after passing the measure;
- Net gains in employment have been shown in nearly every state with a deposit system – Michigan added more than 4600 jobs – New York created 3800 new jobs – and Massachusetts gained 1800 new jobs.



Hawaii's recycling rate is currently 20%; it expects this program to increase that to 30%. The country's recycling rate, as a whole, is about 30%.

The average individual generates approximately four-and-a-half pounds of waste per day. That's more than three-quarters of a ton per person per year. Specific to Puerto Rico, if you multiply that by the island's population of about four million, you have a lot of waste.

Unfortunately, we are a nation of "wasters." On average, Americans waste 25 percent of the food they prepare. We throw away 44 percent of our yard trimmings and over 90 percent of our wood waste. In 2003, our average recycling rate per person was just over one pound per day.

Our inclination to waste isn't a new occurrence. We needn't look too far back into our history to witness how that inclination has compounded the full environmental impact of landfills. After World War II, landfills in the U.S. burgeoned and their impact on the environment was obvious and dramatic. Neighborhoods complained and open-burning dumps gradually gave way to disposing of refuse in a "sanitary" manner. We know today, of course, that what stood for "sanitary" in the middle of the 20<sup>th</sup> Century wouldn't pass the litmus test today.

One record of a landfill in 1949 describes refuse as being “dropped and spread out over a large area to allow scavengers easy access. At the end of the day pigs were allowed on the spread-out refuse for overnight feeding. The next day the pigs were herded off and the refuse was pushed to the edge of the fill for burning.”

Fortunately sanitary engineers gave up on the pigs and stopped the open burning of garbage. The daily cover became common practice and compaction and other techniques were eventually introduced. But as waste technologies have advanced, so has its volume.

We do appear to be gaining some ground in the battle, however. The percentage of municipal solid waste going to landfills continues to decrease. In 2003, recycling and composting diverted more than 72 million tons from disposal. Paper and paperboard recovery rose to 40 million tons. Metals were recycled at 36%, and electronic products had about a 10% recycling rate. Compared to 1980 when Americans only recycled 10% of all of our Municipal Solid Waste, we are clearly on the right track.

Recycling is a vitally important component of a comprehensive solid waste strategy, and it can become a very important element here. The recycling rate in Puerto Rico is generally considered to be in the 10-15% range and that certainly lends itself to vast improvement. We know that

recycling works when you make it easy for consumers. For example, curbside pick-up, conveniently located recycling centers, container sorting systems and deposit programs all have the potential to improve the recycling rate.

Composting is another option to reduce the waste trucked to our landfills. Puerto Rico is taking the initiative to promote composting and we look forward to the implementing of its vegetative materials law this fall. Through regulatory and voluntary programs, composting is an excellent way to recycle yard and kitchen wastes, while reducing our volume of garbage.

I have to believe that composting will some day – some day sooner than later – be as popular as recycling is in the U.S. Today yard and kitchen waste makes up as much as 30% of the nation's waste stream.

The other option – one that I've commented on in the past – is the waste-to-energy component. Two weeks ago I had the opportunity to tour the largest waste-to-energy facility in Long Island, New York. The facility – the Covanta Hempstead Company - is a member of EPA's Performance Track program and it converts 15 million tons of municipal solid waste into renewable energy annually through a combustion process. I was pleasantly surprised at the quality of the facility, its aesthetics and its efficiencies.

The facility processes waste 24-hours a day, seven days a week. Steam created in the combustion process drives a 72-megawatt turbine generator producing electricity for in-plant use and sale to the local utility.

Another facility in the town of Peekskill, New York processes up to 2,250 tons of municipal solid waste a day for 35 communities. At full capacity, the plant can generate more than 60,000 kilowatts of electrical energy for sale to Con Edison. This is the approximate equivalent of supplying all of the electrical needs of more than 80,000 New York homes.

Waste-to-energy facilities have to meet stringent environmental standards and employ some of the most advanced pollution control equipment. They produce electricity with less environmental impact than just about any other source of energy.

Waste-to-energy facilities and options are a critical component of a holistic or integrated solid waste management program. Combining waste-to-energy with aggressive and systematic recycling and composting programs makes good sense.

All of these approaches work toward reducing waste, improving our landfills and improving our economy. In the interim, we need to continue to protect the health interests of our people and our environment and, as in the case of the landfill closures; we are required to be ever vigilant.

Thank you again for inviting me here today. It is always a great pleasure to come to Puerto Rico, and it is an equally great pleasure to have had the opportunity to address all of you. I know my colleagues at the Environmental Quality Board, the Solid Waste Authority and the Department of Natural Resources will agree with me when I say that Puerto Rico is a very valuable jewel and we must do everything in our collective power to preserve its luster.

We could use your help in this endeavor, as well. Thank you.